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ICT - Information and Communication Technologies

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D2.5 – Design, progress and evaluation of the Deptford CreekNet pilot (version 2)

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Executive summary

In this deliverable, the second in a series of three, we report on progress in the Creeknet pilot. We describe progress towards tasks identified in the Description of Work (DoW) for Task 2.2, focusing on activities in Year 2 (2017: months 13-24) and look forward to Year 3.

The Creeknet pilot consists of four phases. This year, our focus has been on consolidating initial contacts made in Year 1 (Phase 1), and continuing community engagement activities alongside carrying out an initial deployment of the MAZI toolkit with a number of engaged community groups and individuals (Phase 2). In the second half of the year, as the toolkit was developed and an integrated set of tool established these groups and others were invited to engage in further trials, and feedback was gathered to further inform onward development (Phase 3).

We have continued with our efforts to build upon existing relationships in Deptford Creek and further afield to help us explore the different ways in which DIY networking in the broadest sense and the use of the MAZI toolkit in particular might help address local challenges. We have reassessed some of our foci through seeking out new opportunities for engagement and trialling the MAZI toolkit. A major activity was planning and running the two day MAZI London Cross-fertilisation symposium. This created the opportunity for Creeknet participants to share their experiences and engage with the other MAZI pilots, bringing together existing community contacts in Deptford Creek, and MAZI partners, and attracted new contributors.

Through our activities, working with the emerging MAZI toolkit that evolved through several iterations during the year, we have better understood local circumstances and the complexity involved in the conceptualisation of 'DIY networking' - it cannot be assumed to be a single notion. We have identified that both social and technological concerns can restrict its uptake, and consider routes to overcoming these challenges. We provide analysis of work carried out so far, and look towards the future activities.

Table of Contents

1. INTRODUCTION	6
2. THE PILOT CONTEXT	7
3. KEY STAKEHOLDERS	8
4. THE PURPOSE.....	8
5. THE PILOT DESIGN	10
6. PHASE 2: INITIAL IMPLEMENTATION (JANUARY – JUNE 2017)	12
6.1 ACTIVITIES	12
6.2 DISSEMINATION AND ENGAGEMENT ACTIVITIES (EDDIES OF ACTIVITY)	15
6.3 OUTCOMES	16
7. CROSS-FERTILISATION COMMUNITY ENGAGEMENT EVENT (JUNE, 2017)	18
7.1 ACTIVITIES	18
7.2 OUTCOMES	24
8. PHASE 3: INTEGRATED MAZI TRIALS (JULY TO DECEMBER, 2018).....	26
8.1 ACTIVITIES	26
8.2 DISSEMINATION AND ENGAGEMENT ACTIVITIES (EDDIES OF ACTIVITY)	27
8.2.1 <i>UnMonastery Kokkinopilos pilot visits.....</i>	<i>28</i>
8.2.2 <i>UnMonastery Tsepelovo pilot visit.....</i>	<i>29</i>
8.2.3 <i>MayDay Rooms.....</i>	<i>29</i>
8.2.4 <i>Central St. Martins: student engagement and Sao Paulo favelas rights to the city.....</i>	<i>29</i>
8.3 OUTCOMES	30
8.3.1 <i>Reflections on DIY networking</i>	<i>30</i>
8.3.2 <i>Technical insights.....</i>	<i>31</i>
8.3.3 <i>Perceived social barriers.....</i>	<i>32</i>
9. REFLECTIONS	33
9.1 COMMUNITY ENGAGEMENT EVENTS.....	33
9.2 COMMUNITY PARTNERS	36
9.3 FACTORS AFFECTING UPTAKE OF THE MAZI TOOLKIT IN THE CREEKNET PILOT.....	37
9.4 CONCEPTUAL FRAMINGS: LOCALISING LANGUAGE TO SPEAK TO DEPTFORD CREEK	39
9.5 BUILDING TRUST	40
9.6 TENSIONS OF INSIDER/OUTSIDER RESEARCHER STATUS	40
9.7 PROJECT VERSUS INITIATIVE TIMEFRAMES.....	40
10. CONCLUSIONS AND OUTLOOK	42
10.1 SUMMARISING KEY ACTIVITIES	42
10.2 FUTURE OUTLOOK: YEAR 3 ACTIVITIES	43

1. Introduction

This report is an update of progress in the Creeknet pilot for Months 13-24, building on the M12 Deliverable 2.4 report. We describe progress that has been made in the Deptford Creek based MAZI pilot during this period.

As with the previous report, we use the framing of the 6Ps to structure the document (Holliman et al., 2017):

- *'Preparedness'*: identifying local contexts, understanding of the challenges to be faced, the researchers' preparations for dealing with these challenges
- *'Politics'*: understanding the local social and political contexts in which the research would be carried out
- *'People'*: identifying the people that will be involved or affected by the work: the researchers, the community partners with whom we engaged, other community participants, others affected by the work
- *'Purposes'*: clarifying the aims and objectives of the research from the perspective of MAZI, the participants involved and other stakeholders
- *'Processes'*: pinning down the approach, methods and techniques that would be followed by the research team
- *'Performances'*: considering what was found and the extent to which this met the objectives of the research

We report on activities undertaken, emerging themes, challenges encountered and plans for developments in the final year of MAZI (months 25-36). Section 2 provides an update on the preparedness and politics, section 3 on the people involved, section 4 on the pilot design, and sections 6, 7 and 8 report on the purposes, processes and performances of the initial implementation, cross-fertilization event, and the integrated trials. Section 9 reflects upon the activities of the year and section 10 concludes with a discussion of what has been achieved, and the future outlook.

2. The Pilot Context

This section sets the scene for the pilot by describing our continued efforts to maintain a ready state of 'Preparedness' in terms of our understanding of the challenges we would face; and the 'Politics' characterising the local social and political contexts in which the research was being carried out.

Deptford Creek, the geographical focus of the Creeknet pilot, continues to change at a rapid pace. The local area has seen gentrification and redevelopment continue at speed: the old railway arches next to the station have been launched as Deptford Market Yard with the developer winning a property developers' award in 2017. Along the Creek, new tower blocks rise up week by week, and the Thames Tideway Scheme infrastructure project progresses leading to the removal of trees and re-routing of footpaths in the area (e.g. <http://crossfields.blogspot.co.uk/2017/03/>).

Development demands have directly impacted groups with which the Creeknet project is engaging. Specifically, the boaters in the Theatre Arm represented by Friends of Deptford Creek (FODC) are under severe pressure to maintain their rights to moorings and land access, as new owners propose development plans for the yards that they've long used and rented next to their boats. The Minesweeper Collective have long been under pressure from the development requirements of the Thames Tideway Scheme, and compounded by a catastrophic fire in January 2017 of their central boat, the 1950's wooden minesweeper (ex-HMS Ledsham) has led to the dispersal of some residential boaters, and loss of shore access. Maintaining a viable existence for these boating communities and associated residents has become a greater struggle.

The Minesweeper wreck now has a future home on the creek as a micro-environment with Port of London Authority (PLA) and Creekside Discovery Centre (CDC) in partnership roles. FODC are attempting to form a cooperative seeking consolidation of mooring rights for all the boating community and future users of Deptford Creek. Overall, the predicament still looms at the end of the year, and while there has been strong local resistance and successful campaigns to challenge developer planning applications, there is a concern that this has only suspended inevitable shore-side development.

Against this context the Creeknet pilot continues to engage with a range of individuals and groups along the length of the Creek, working with the four framings of MAZI:

- **CONTACT:** building relationships across the diverse population that lives in small geographical area but with very different characteristics, and drawing in new arrivals.
- **INFORMATION:** in order to help build a sense of collective awareness, informing both newcomers and long-term residents about what is happening around them.
- **Third,** the hidden stories of their locality with **DISCOURSE** to engage community members in discussions around shared interests, and debates about the identity and future potential of their lived environment.
- **KNOWLEDGE SHARING** was not identified in the Description of Work as a framing for Creeknet, but has arisen as a highly relevant motivation for community participation in the face of rapid neighbourhood change.

The framings have been enacted through development support and direct intervention e.g. revitalising of the Brookmill Park Ranger's hut, clearing of the Hoy Steps, working closely with Creekside Discovery Centre and the upscaling of local wireless network access.

3. Key Stakeholders

In Months 13-24 of the project, the Creeknet project team remained the same. OU and SPC continued to develop their communication model to bridge the 70km distance between locations and time taken when visiting one another to attend meetings, conduct field work and extend the scope of interaction between all participants of the pilot. The weekly rhythm of contact and collaboration required a combination of all our experience and appetite for experimentation with the process, though which we have all learned much and employed the MAZI toolkit as part of our organisation practises.

SPC's base at Deckspace is within close proximity of the Creeknet pilot study area, but to establish and maintain contact with community participants SPC relied on an outreach work plan, utilising Creekside based meeting rooms and recreational resources. For SPC, the constituent tasks of Months 13-24 represent a continuation of an ongoing investigation into DIY networking and self-provision of telecoms and publishing. This started in 1996 at 'Backspace' in Clink Street, London Bridge, and continued as Consume from 2000, then up to the present in Deptford with 'OWN' (Open Wireless Network).

4. The Purpose

In this section we explain the purposes of our research according to the aims and objectives laid out in Phase 2 - initial implementation; and Phase 3 - integrated MAZI trials, further described in MAZI DoW (Figure 1).

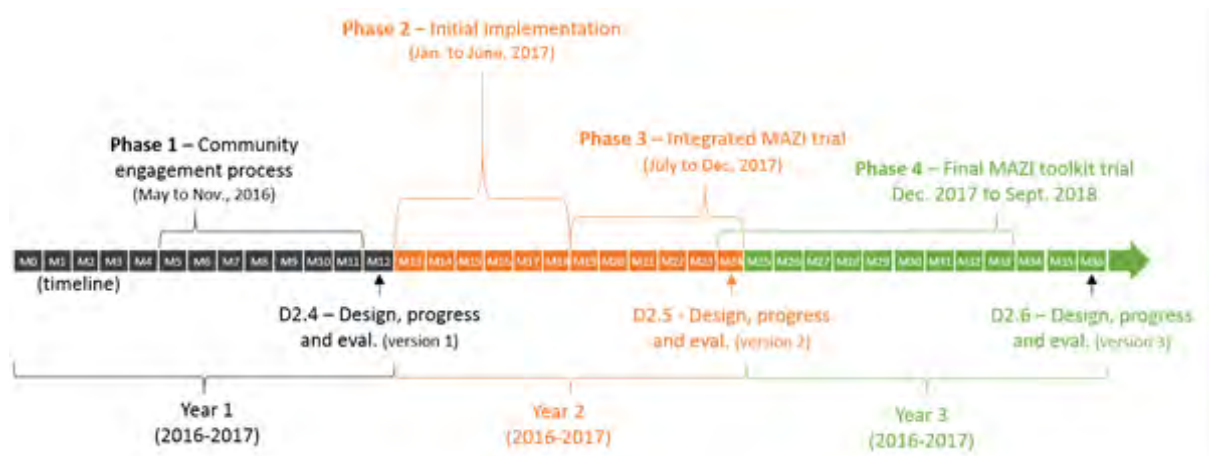


Figure 1: the activities to be carried out across the four phases of the Creeknet pilot, as described in the MAZI project's Description of Work (DoW).

The purpose of Phase 2 was to carry out an initial implementation of network infrastructures and individual services to enable community engagement (M13-M18):

- to include a focus on micro data hosting, web authoring and communication tools that promote offline networks, safer mobile communications and inspire public interactions
- to arrange for the first iteration of implementation tools to be tested by community champions to enable critical reflection on their usability and affordances, and likely opportunities for integration within MAZI toolkit
- to ask participants to provide feedback on the effectiveness and usability of services

The purpose of Phase 3 was to carry out an integrated MAZI trial to embed the prototype MAZI toolkit (with constituent services) within a broader reaching community network (e.g. OWN) (M19-24):

- to introduce community leaders to the first version of the integrated toolkit and providing a selection of services and configurations in response to local conditions
- to promote to a wider community of users through network champions and local media actions (e.g. by promotion at SPC Wireless Wednesdays and other community level outlets)
- to carry out training for neighbourhood participants through regular community based activities, including workshops and drop-in sessions

- to host an evaluation workshop to get feedback from the community and enable design input into a further development of the system

5. The Pilot Design

This section reports on the design of the processes we employed to carry out Phase 2 & 3 of the pilot, including the methods of data collection and analysis we used to evaluate the benefits of this approach, and the values provided to people with which we engaged.

Adopting Participatory Action Research (PAR) as an approach (as described in D2.4) remains relevant for the way we are researching the value of DIY networking and the potential for developing a MAZI toolkit that meets the needs of the Creeknet pilot situations. The advantage of this approach continues to be its ability to act as a vehicle for purposely creating opportunities for our marginalised communities to explore how DIY networking might empower them as instigators of new ideas and leaders on activation. This has encouraged both the research team and the communities to think creatively about how to engage in the co-creation of knowledge, e.g. by considering scenarios in which a MAZI toolkit might adhere to the ‘empowerment agenda’. In Year 2 this has meant that we have been able to create opportunities firstly for the ‘initial implementation’ of network infrastructures and individual services (Creeknet Phase 2) and secondly, for a series of ‘integrated MAZI trials’ that can be framed as community-led activities, making use of constituent DIY-networking services within a broader reaching community network (Creeknet Phase 3).

Adhering to the logic of Chevalier and Buckles (2013), Figure 2 illustrates how the objectives of Phases 2 and 3 have aligned with the three named elements of PAR: participation (life in society and democracy), action (engagement with experience and history), and research (soundness in thought and the growth of knowledge).



Figure 2: Mapping Phase 2&3 activities to a Participatory Action Research approach

Phase 1 of the pilot (Jan. to Dec. 2016) was designed to identify processes that effectively engaged community groups and individuals in activities that facilitated community mapping, outreach activities and plans for capturing insights. In designing Phase 2 (initial implementation, Jan. to Jun. 2017) and Phase 3 (integrated trials, Jul. to Dec. 2017) we reflected on what was effective in terms of engaging people in Phase 1, and the objectives that we would need to meet in Phase 4, Jan.- Sept. 2018 (Figure 4).

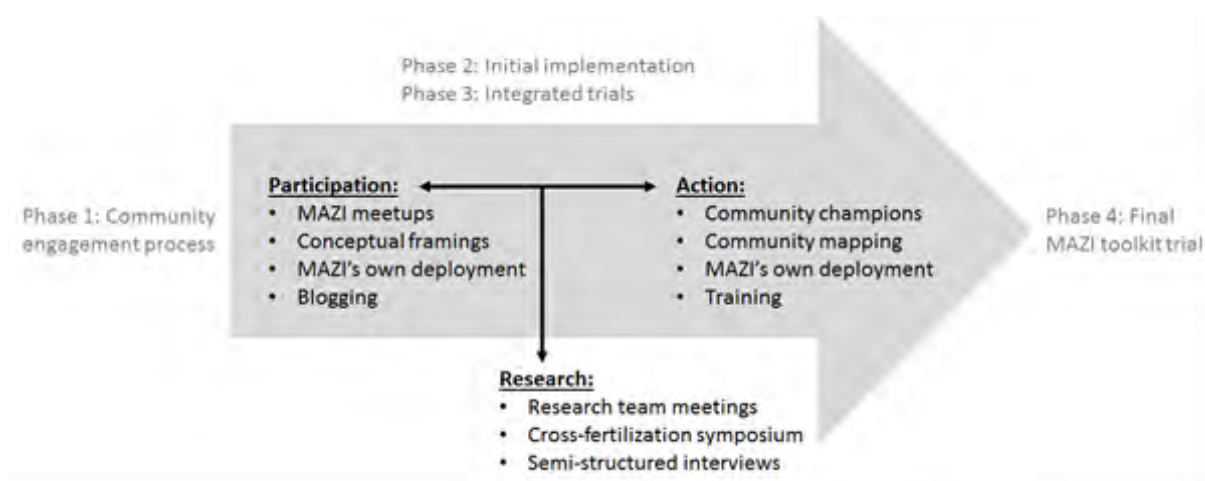


Figure 3: illustrating the components used to address Phase 2 and 3 of the Creeknet pilot

In Figure 3 we represent the components of our design for meeting the objectives of Phases 2 & 3. Throughout the process there was crossover between SPC and OU's efforts to encourage members of communities to participate and engage in actions that facilitated insights into our research.

6. Phase 2: Initial Implementation (January – June 2017)

The planned purpose of Phase 2 was to carry out an initial implementation of network infrastructures and individual services to enable community engagement and trialling of early versions of the MAZI toolkit. This provided the research team with feedback to help further develop services, including a focus on applications that could be used by participants as tools for micro data hosting, web authoring and communication tools. It was intended that this would help us promote offline networks, safer mobile communications and inspire interactions between individuals and community groups.

6.1 Activities

This section describes the approach, methods, and techniques that we followed to deploy the initial implementation of the MAZI toolkit, and gain community feedback. During Phase 1, we had focussed on establishing community engagement, opening up discussion around community challenges, and introducing debate around the role networked tools might play to overcome these issues and help empower communities. This action necessarily continued, both with existing contacts and reaching out to new groups and individuals; however during Phase 2 our primary focus moved to an exploration of how the MAZI toolkit under development might be employed in the pursuit of these community goals.

Our approach was to create opportunities for participants to discover and interact with the MAZI toolkit, through practical hands-on events and follow-up conversations. We held a further series of regular public MAZI meet-ups ('MAZI-Mondays'). SPC promoted events, and also identified community participants that could engage others in turn.

MAZI-Mondays were held at strategic locations along the Creek, purposely chosen to reflect the diversity of the groups we wished to attract, both in terms of geographical and cultural focus. We took a conscious design decision to choose geographically nearby meeting places up and down the Creek, and a mixture of both familiar and well frequented places, but also others that were physically well known yet less visited and might invite attendance through stimulating curiosity.

These included: The Hoy Kitchen, near the mouth of Deptford Creek; the Refectory at Trinity Laban Dance; aboard Luna, one of the boats owned by a member of the Friends of Deptford Creek (centred around one boating community); the Birds Nest Pub/Undercurrents art gallery; the Stephen Lawrence Centre, a community organisation supporting young people's skills development bordering Brookmill Park, to the south of the Creek (see Figure 4 for an image of one of these meetings); the park warden's hut, Brookmill Park (home of Redstart Arts' activities). All were spaces where there was capacity for group assemblies, often places that some attendees had never visited before.



Figure 4: MAZI Monday held at the Stephen Lawrence Centre: participants exploring the MAZI toolkit, and community mapping.

The methods we used to engage participants included introductions and open discussion around local challenges, both for the Deptford Creek area in general and faced by the participating groups and individuals specifically. We explored relationships and geographical interests using community mapping techniques, and introduced the MAZI toolkit through demonstrations and hands-on guided sessions. A key discussion focus was around how tools might facilitate offline networks, safer mobile communication and inspire public interaction. MAZI toolkit guidance was provided and also related technical support to build participants' capacities in using their own equipment (such as smartphones and laptops). The intended focus for Phase 2 was "tools for micro data hosting, web authoring and communication" (MAZI DoW), hence support was offered around the specific tools and concepts as they appeared within the toolkit and more generally: we recognised that some participating groups were already web authoring online (e.g. using WordPress) and beginning training for these known tools would increase capacity both to resolve current community needs, and also to encourage exploration of the MAZI toolkit.

'Initial implementation of infrastructures' was enacted through technical work carried out by SPC. This included setting up and testing MAZI toolkits and distributing them to community participants for initial trialling; revitalising and extending SPC's Open Wireless Network infrastructure across the Deptford area; and preparatory technical work to ready community partners for engagement with MAZI (e.g. laying network cabling).

The wider debates around DIY networking resonated with many of the participants, and a number agreed to try out installations of the MAZI toolkit. Two installations were set up in Phase 2. With the sad demise of the Minesweeper Collective's boat, there was a community desire to archive memories, stories, images, and other media around its activities, and a MAZIzone was installed in the Undercurrents' Art Gallery in the Birds Nest pub by artist Karen Barnes, working with SPC. Second, a MAZIzone was set up at the Hoy Cafe, one of the venues for MAZI-Mondays that had emerged as an active participant: the owner was enthusiastic to engage with our activities, and helped give us access to the neighbouring historic Hoy Steps, owned by the proprietor's family, one of the few locally owned access points to Deptford Creek. This became a focus of MAZI community activities in spring 2017, with SPC coordinating a clean-up of the access steps (Figure 5).



Figure 5: The Hoy Steps clear up: re-enabling access to Deptford Creek

The clean-up of the Hoy Steps brought together different individuals and groups around a very hands-on yet analogue DIY networking activity, in preparation for the June MAZI cross-fertilisation event. We wished to engage



not only visitors but also locals in considering Deptford Creek's geography from a different perspective, and to elicit associated local stories that could then be gathered and disseminated by a MAZIzone in the vicinity.

MAZI Installations deployed in Phase 2 are described in Table 1.

Table 1: Deployments of MAZlzones in Phase 2

Deployment	Setting	Description of setting	Purpose of MAZlzone	Key tools
Custard, Cyclops, Darkness (and others)	Roving demonstrators	Roving, with James SPC	Carried with James to showcase MAZI when the opportunity presents itself to interested parties.	Current updated installation of MAZI toolkit with custom tools including Twinery, WordPress interface.
Undercurrents	Bird's Nest Pub, Undercurrents art gallery	Community meeting place, venue, art gallery hosted by Minesweeper Collective	(1) Community memory archive: Capturing and sharing stories, audio and photos associated with the Minesweeper (HMS Ledsham) . (2) Promotion of MAZI concept in community setting	Guestbook, Nextcloud, etherpad
Hoy Cafe and Steps	The Hoy Cafe	Cafe with sitting area. Base of MAZI-Mondays and activity around Hoy Steps, venue for London Cross Fertilisation event, owned by Claire, participant in MAZI events.	(1)Promotion of MAZI concept in community setting (2) Proof of internet access via MAZlzone (3) Information on Hoy Steps activities	V1.8.5 of MAZI toolkit plus internet backhaul enabled.

Ongoing testing and exploration of the MAZI toolkit was carried out throughout Phase 2 in order to better understand its functionalities and to offer feedback to the developers. This was undertaken both by the research team, to support the training of community participants when it was introduced in MAZI-Mondays and for anticipated installations; and also by community participants themselves as they began to experiment directly with the toolkit. As challenges were encountered, requests were made to the WP1 technical team via the technical mailbox and direct email requests. Local development work was also carried out to explore the incorporation of additional tools and customise the system for local circumstances.

6.2 Dissemination and engagement activities (eddies of activity)

Year 2 Dissemination and engagement activities have resulted in broader conversations around DIY networking and the installation and testing of further MAZlzones. In keeping with the maritime metaphors used to bridge conversations in Creeknet, we consider these 'eddies' of additional activity: taking the team beyond the core focus of the Creeknet pilot, but bringing back additional progress, reflection, and feedback into the toolkit and the way we engage local communities with MAZI. These include both complimentary activities in the Deptford Creek area, and also in localities outside the pilot study location.

We also reached out to the wider neighbourhood through bespoke encounters, including individual engagement with interested parties, and by SPC attending social and public meetings hosted by other organisations and promoting the MAZI approach and toolkit when appropriate. The goal of these interactions was to encourage and empower communities to engage with the MAZI toolkit, and also to provide us with feedback on their experiences to help inform the toolkit's onward development.

SPC worked to support WP1 in the testing and experimentation of the MAZI toolkit to understand its capabilities and limitations, and explored local customisations suitable for Creeknet conditions. A complementary activity in May-June was the exploration of an OU Bluetooth beacon system, previously used to trigger language activities on smartphones for language learners travelling around Milton Keynes (<http://www.open.ac.uk/blogs/salsa/>) and now considered for repurposing as a mechanism for triggering local stories up and down Deptford Creek using the bridges as focal points, and potential subsequent integration within MAZI. In keeping with the maritime metaphors being used to bridge conversations, this was rebranded as 'Anchorholds'. The research team came to grips with the system, tested and deployed a beacon trail, and worked with community participants to populate the smartphone app with content for each location. We considered this one of our 'eddies of activity' to use a maritime metaphor: complementary work that took us beyond the core development work but sought to give us time for reflection, draw in community participation, extend our expertise and help us consider the key purposes of DIY networking in the community setting.

Another complementary development activity was the exploration of an alternative installation route for the MAZI toolkit using 'berryboot', a system that allows multiple disk images to be held on the same Raspberry Pi, and for a user to be able to move between different customised versions and choose the most appropriate version for them. Even at this early stage of introducing the MAZI toolkit to the local community, we could see that there were likely to be a range of different customisations for different groups, and a prospective participant might wish to play with a range of existing variants. A connection was made through dissemination activities by SPC with the owner of a website that hosts different berryboot images (Berryserver: <https://berryboot.alexgoldcheidt.com/>), who was keen to host the MAZI toolkit image and disseminate current versions to his community of Raspberry Pi users. At the time of writing (Dec. 2017), there have been 525 downloads of the MAZI toolkit from this site.

Discussions around the rising need for safe, secure and stable alternatives to corporate cloud computing led to the following initiatives:

- The Friends of Brookmill Park group, and Friends of Deptford Creek currently share access to Sandstorm tools installed on an Atom powered mini PC hosted at SPC, which is well suited to the task. Demands on the server are currently very modest at this point but with new friends gaining skills and interest it is anticipated that this will change. This led to both groups making use of the Etherpad (shared authoring tool), Davros (file store) and Weekan board (list manager) tools at MAZI-Monday meetings and experimenting with respective WordPress based websites at commercial web hosts, which generated conversations about how these too could be hosted within the alternative Sandstorm environment run by SPC, and what the benefits and challenges might be in having a portable version held on Raspberry PI MAZI toolkit. In the case of Friends of Brookmill Park, SPC provided training and helped reassert control over a dormant website, and for Friends of Deptford Creek, SPC set up a new WordPress based site and encouraged members to tell the stories of their boats. Both groups, having been trained in using Etherpad on a MAZI toolkit at MAZI-Monday workshops have used this within the online Sandstorm environment as an information resource (e.g. recording meeting notes).
- Deptford Housing Coop members shared Fibre-To-The-Cabinet broadband access over a structured wired network and wireless access system SPC installed in 2003 and continues to maintain. Over a hundred people a day rely on continuity of access for their web, mail and media needs. More recent requests for shared resources and services have mostly been met with addition of another Sandstorm server here very recently, and opened an opportunity to discuss the potential of the MAZI toolkit to support knowledge sharing amongst cooperative members.

By providing technical training and guidance for tools that both appear in the MAZI toolkit, but also online, we increased capacity in participants' current working practices with the ambition that this would also increase their confidence in exploring the MAZI toolkit and reflecting on DIY networking.

6.3 Outcomes

In Phase 2, we continued to extend our invitation to local groups to find out about DIY networking, and working on building relationships across the Deptford Creek area to help build a sense of collective awareness. We demonstrated the MAZI toolkit and its developing functionalities, employing it within MAZI-Monday meetings and beginning initial deployments in community settings.

Engaging communities directly with DIY networking technologies was sometimes a challenge. We recognised that the level of technical expertise across participating groups was not always high, often along with limited self-confidence and compounded by limited time availability due to other commitments (e.g. *"I find it really hard to think digitally"*). However, our participants were active within the local neighbourhood as activists, volunteers, and artists, so the philosophy of 'doing it yourself' and networking at a local level was already embraced, and engaged well with the MAZI pilot 'DIY networking' activities, participating in the MAZI-Mondays and specific actions such as the Hoy Steps clear-up. This acted as the bridging point into introducing how local networking technologies might support local activities as well as responding to the MAZI framings: triggering contact between people who might otherwise not meet, sharing information and knowledge, and triggering discourse.

Digital technologies are part of most of the participants' lives, with many using smartphones as part of their daily practices: indeed this was the most common platform brought to MAZI-Mondays and presented when we asked people to try connecting to the MAZI toolkit. Many participants use internet based services (e.g. email, web browsing, social media) as part of their daily activities and so the idea of digital networking to facilitate local processes was well understood, though the 'appetite' to explore beyond current practices varied. There was a recognition of the potential issues of sharing data via commercial cloud based services but less confidence in trying out alternatives: we learned the case has to be well made.

It was clear that mechanisms were required to help people to the point of being able to engage with the MAZI toolkit, overcoming their fear of the perceived complexities. Having introduced 'pretotyping' as a useful concept in Phase 1, we found it to be of continued value to explore what might tools and configurations might support local purposes, and to elicit feedback on the prototype system that could be fed back to developers. Pretotyping worked not only as a means of describing what systems might eventually look like and support but also to provide a less forbidding mechanism for encouraging participation and building confidence.

Greatest engagement with the toolkit was achieved when resonating with immediate community concerns and current points of focus. Web based self-publishing (e.g. promoting a group's activities), knowledge capture (gathering together community memories of the Minesweeper) and collaborative recording of meetings (to organise responses to developers) were recognisable and formed the basis of training and exploration. Levels of enthusiasm varied, and we recognised that these were in part due to the concerns of their participants about their perceived levels of technical ability and confidence, and also the challenge of asking non-experts to engage with a toolkit under development.

Participants were willing to try out and explore the MAZI toolkit in workshops, and provided valuable feedback on their experiences, which were fed back to the development team. They were more cautious about trying out MAZI toolkits in their own practices, which might be expected as we had indicated the toolkit was still under development and not in its final form. Furthermore, even at this stage of early introduction, participants asked about the long-term support of the system: would it still be supported by the research team after the project period had ended? The sustainability of technologies and community initiatives is a live concern in this locality. However, two installations were carried out and have provided valuable insights around deployment in a live setting: feedback has been provided to the MAZI technical developers.

Training in self-publishing (Wordpress) was well received and a number of groups began to engage with alternatives to cloud computing, using services provided by SPC that appear in the MAZI toolkit. Within the open sessions, we recognised that we were carrying out multiple activities: discussing community needs and DIY networking; eliciting feedback on the MAZI toolkit under development; and also encouraging the use of the toolkit as it stood to respond to actual community needs. This led us to consider organising more tightly focussed sessions for Phase 3.

The lesson we took away from these encounters as a pilot was that you can't rush at any of these solutions in the hope that all difficulties and obstructions to communication fade to transparency on contact. Working locally and acknowledging limited abilities, preserving a strong sense of respect and appreciation for privacy concerns, demands attention and requires dedication of effort on us all.

7. Cross-fertilisation community engagement event (June, 2017)

In June 2017, The Creeknet pilot hosted a MAZI cross-fertilisation event (responding to Task 3.3 of the MAZI DoW). We decided to actively involve Creeknet participants, and the preparation and running of the event acted as a focus for action within the Creeknet pilot during Year 2. This gave us an the opportunity to add another dimension to our engagement with Creeknet participants, enabling them to engage with DIY networkers from elsewhere in MAZI and the MAZI Advisory Board; and to instigate exchanges with the wider population of both Deptford Creek, and interested community and DIY networking activists from across London. We report on the cross fertilisation event in outline, and activities as related to the Creeknet pilot. More reporting of the event can be found in WP3 deliverables.

7.1 Activities

The Creeknet research team focussed on preparation for the cross fertilization event as a major activity during May and June 2017. Key activities in the lead up to the event were:

- Encouragement of local participation to clear and open up the Hoy Steps
- Development of the Anchorholds system as a means of structuring a tour around Deptford Creek, and publishing stories
- Capturing and drawing together stories and representations of the Creek

The cross-fertilisation event was run over two days, moving between locations where MAZI events had been previously held and linked to MAZI participants.

Day 1:

- Introduction to MAZI and Deptford Creek at The Hoy Cafe including displays and presentations by local artists and MAZI participants Karen Barnes and Gordon Cooper
- Workshop with breakout sessions discussing the meaning of themes underpinning MAZI (DIY networking, social cohesion, conviviality, knowledge sharing, and sustainability) followed up by each group reporting back on the key points discussed
- Open conversations, demonstrations, and viewing of the Hoy Steps
- 'Low tide walk' from the Creekside Discovery Centre along the Creek river bed exploring the local environment and seeing Deptford Creek from another perspective. Learning about CDC's participation in MAZI and the potential use of DIY technology to gather species information and environmental data, extending CDCs offering to schools and the local community.

Day 2:

- MAZI partners reporting on the four different pilot trials, and overview of the MAZI toolkit, at the Stephen Lawrence Centre, followed by a questions and answers session about challenges and lessons learned.
- Hands-on DIY MAZI toolkit session
- Picnic in Brookmill Park and informal breakout sessions
- Introduction to RedStart Arts and their work in the Brookmill Park warden's hut
- Anchorholds tour: use of location-triggered stories, and physical bridges as both an actual tour and metaphor for bridging communities in and around the Creek

Figures 6 and 7 illustrate the timeline of events and how they were planned in terms of providing opportunities for different dimensions of engagement (i.e. 'talk to', 'talk with' and 'do stuff').

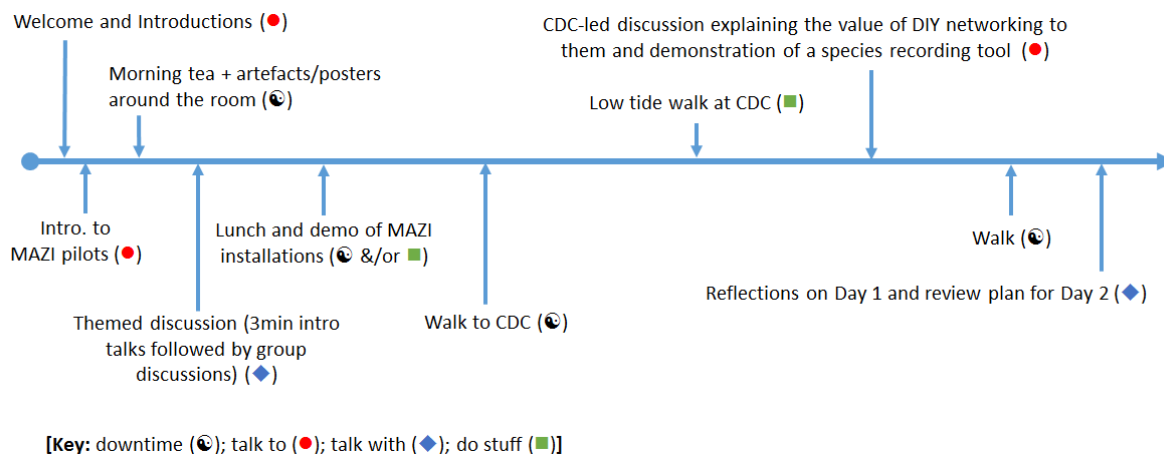


Figure 6: Illustrating the activities that took place during day 1 of the Cross-fertilization event

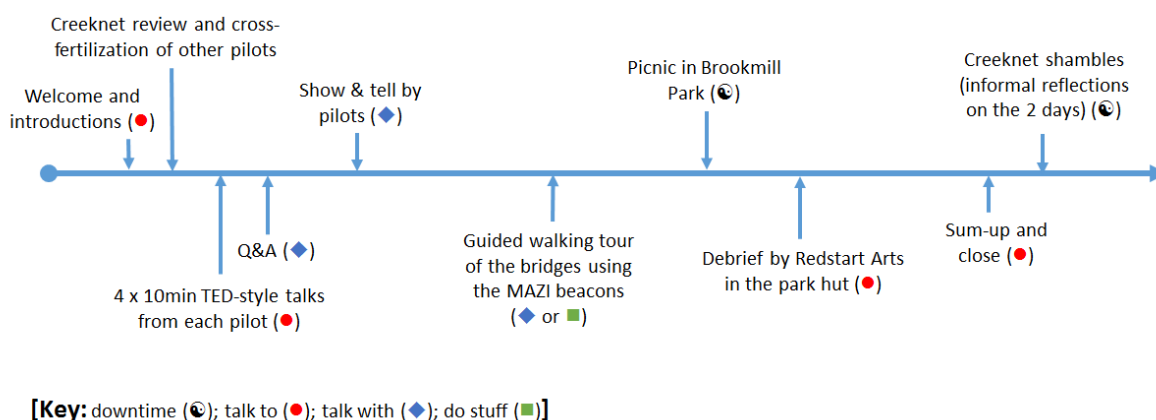


Figure 7: Illustrating the activities that took place during Day 2 of the Cross-fertilization event

As an event focussed on knowledge exchange, we were keen to encourage interactions between different participants, so ensured we had a balance of presentations ('talking to' participants) information exchange opportunities ('talk with') and hand-on activities where participants would have to engage with a task and each other ('do stuff'). To encourage conversations we offered a range of stickers representing different identities and encouraged participants to choose those with which they self-identified (Figure 8), including playful, place-based and professional options.



Figure 8: Stickers for participants to choose and display their identity at the cross-fertilisation event

We wanted to present a broad range of DIY cultures and decorated the venues with photography and art from local artists, and had opening presentations from MAZI participants Karen Barnes and Gordon Cooper who talked about their art practice, DIY culture, and how they were working with MAZI. Karen brought along her mobile camera obscura (a box approximately 2m x 1.5m x 1.5m) into which we were planning to mount a MAZIzone. Creekside Discovery Centre discussed how networking technologies might be used in their context to gather data about the environment and Cash from Redstart Arts opened the park warden's hut in Brookmill Park to show the work being created by her art group (developing and delivering visual arts for adults with learning difficulties).

Participants at the event were asked to participate in DIY networking by working with each other to construct their own folded paper information guides to the event, using bookleteer (<https://bookleteer.com/>), a system created by local artist/activists Proboscis which enables the output from digital media (e.g. WordPress posts) to a leaflet. This has been used in a diverse range of environments from urban geography projects in London to engaging indigenous populations in the Amazon and was brought to our attention by one of the project originators attending a MAZI-Monday meeting. It was identified as a useful mechanism for disseminating information, but also, by its very nature as a Do-It-Yourself output, an artefact that would both resonate with the philosophy of the MAZI project and act as a boundary object between the technological world of the MAZI toolkit and the creative world of many of our participants. The act of participants working together to make their own leaflet, sharing the knowledge of how to do it, was a successful ice-breaker activity resulting in conversation exchanges as well as perhaps more careful examination of our disseminated information than if a pre-made leaflet or website had been provided (see Figure 9 for the leaflet produced).



Figure 9: The London Cross Fertilisation event information brochure- created as a Bookleteer leaflet

The official map of the event was produced by MAZI participants and artists the Minesweeper Collective, providing their interpretation of the Deptford Creek geography, and MAZI DIY networking activity in the areas: interpreted as 'batcave' technology hubs (Figure 10).



Figure 10: Representation of the Creeknet area and wireless networking initiative by artists of the Minesweeper Collective

Community mapping was a key activity within the event with participants asked to annotate maps locating the MAZI themes of social cohesion, conviviality, knowledge sharing, and sustainable living in the Deptford Creek area (Figure 11). ‘Mapping’ through storytelling also happened through the visits to locations up and down the Creek. The visit to the Hoy Steps, for example, not only triggered a debate about the right of access to the Creek, but also stories about the history of water boatmen and their work by one of our participants who had worked for most of his life on the river.

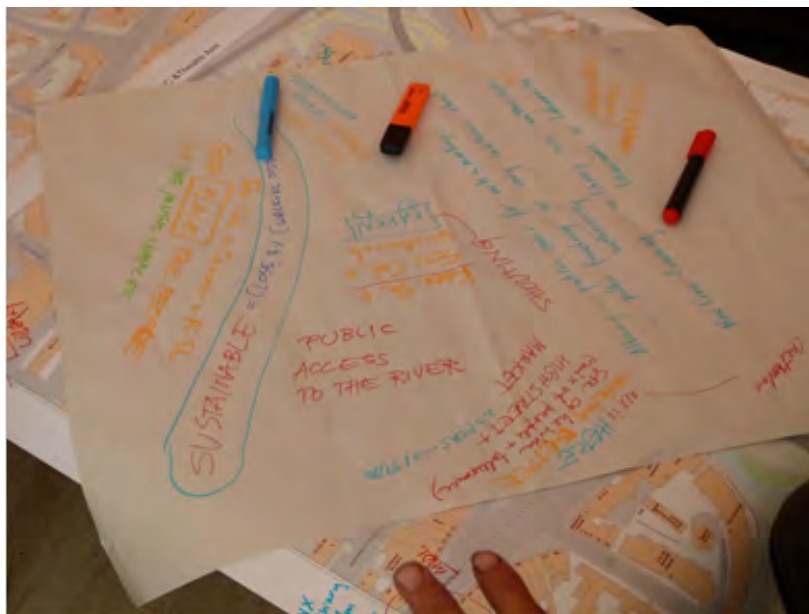


Figure 11: Exploring how MAZI themes might map to local understandings of Deptford Creek

The Creeknet pilot has emphasised self-publishing as a mechanism to enable groups' voices to be heard, and to support the exchange of knowledge along Deptford Creek. One mechanism we have been exploring has been to use the bridges over the Creek as a linking mechanism and distributing information and knowledge sharing points along the Creek, initially using the Open University developed SALSA beacons system and onwards exploring whether this may be linked into the MAZI offering. The initial prototype was demonstrated at the cross-fertilisation event as part of a guided walk, taking participants along the trail with content gathered by the team so far (Figure 12).

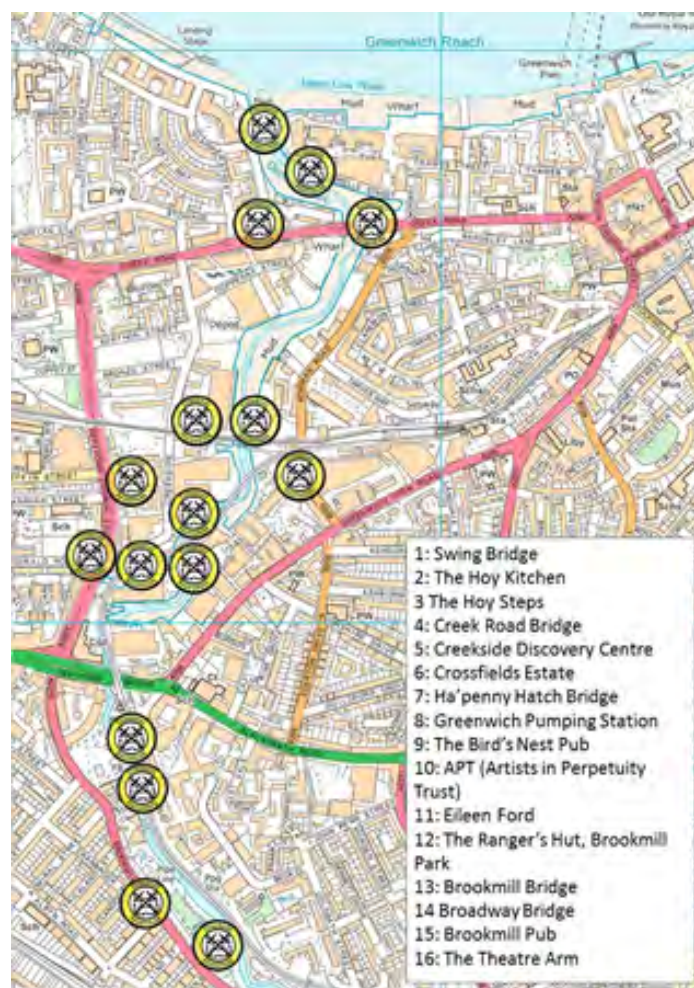


Figure 12: Anchorhold trail along Deptford Creek

7.2 Outcomes

Over 40 people attended the cross-fertilisation event during the two days, including MAZI partners, MAZI participants, local residents of Deptford and others interested in DIY networking. The decision to use public venues was validated by the attendance of people who engaged in the event after passing by. Creeknet participants were given the opportunity to interact with the wider MAZI project and both learn about the bigger picture, and present their activities, ambitions and challenges in its physical context. Some of the most valued interactions took place in informal breakout sessions including lunch time conversations at the Hoy Steps, and the picnic in Brookmill Park.

The event had a catalysing effect on the Creeknet pilot: there was the sense of an immutable deadline to work towards which both pushed forward work but also changed the rhythm of activities so far. The opening of the Hoy Steps brought a range of people together both in action (the clear up, and setting up of a MAZIzone) and also triggered an exchange of stories about the area and debate about rights of access. The ambition to run the Anchorholds beacons system was partially fulfilled: setting up the beacon system was more time consuming and problematic than expected and identified the need for better onward documentation. Generating content to describe localities relied more than expected on the SPC team and led to reflection on how we encourage greater levels of self-publishing by community groups. However, by allowing a broader discussion of DIY networking to take place, the event allowed for a richer discussion of the diversity of methods, approaches, and mechanisms that might constitute 'DIY networking' and as well as promoting the MAZI project and the MAZI toolkit also allowed for exchanges from all participants' experiences, that will inform the ongoing Creeknet and wider MAZI work (e.g. Berlin MAZI partners expressed an interest to adopt the bookleteer tool in their practices). Attendance

by locals was not as high at the event as hoped, and this requires consider of how we promote events in future, and how to articulate the value of events.

The event brought into focus the earlier proposed Creeknet scenarios and reflections upon the challenges which need to be overcome to gain their achievement.

8. Phase 3: Integrated MAZI trials (July to December, 2018)

Phase 3 of the Creeknet pilot extended trials of the MAZI toolkit across the Creeknet area, building on conversations developed through Phase 1 and Phase 2. The MAZI toolkit was under continuous development during this period, and newer releases of the toolkit were trialled as they were released, both with MAZI participants and also by the Creeknet team. Promotion of the MAZI toolkit and approach was carried out both within the Deptford Creek area and beyond. Feedback from participants and the research team was presented back to the MAZI technical team.

8.1 Activities

During the second half of Year 2, the focus of the Creeknet pilot shifted to deploying MAZIzones across the Deptford Creek area with participants who had indicated an interest in trialling the system. These led from earlier engagement activities including developments from scenarios discussed between the research team and participants reported on in D2.4 ('Sensing the creek', 'Community information exchange', 'the Networked bird box', 'The Datamine', and 'Beacons on the bridge'). Five MAZIzones were deployed and developed during this period. The MAZI toolkit itself was under ongoing development by the technical team and moving through release cycles at this time. The Creeknet team carried out testing and trialling of the toolkit releases, providing feedback to the MAZI technical team from their own experiences and those of community participants testing field installations of the MAZI toolkit; and in parallel, exploring local customisations (adding additional services, exploring configurations).

Table 2: Deployments of MAZIzones in Deptford Creek area in Phase 3

Deployment	Setting	Description of setting	Purpose of MAZIzone	Key tools
Eileen Ford	Karen Barnes (artist)'s MAZIzone	Portable device to be attached to camera obscura	(1)Capture of images as part of artistic process (2) Promotion of artist's work	V2.0 of MAZI toolkit
Wonky Prong	Wonky Prong, Crossfields Estate Gardens	Community gardening project	(1)Monitoring environment and image capture	V1.8.5 of MAZI toolkit
Redstart Arts	Redstart Arts, Brookmill Park	Park Warden's hut, venue for community arts group	(1)Information repository (2) Dissemination of activities to park visitors	V2.0 of MAZI toolkit
Solar Roller	SELCE (South East London Community Energy)	Portable device: kept with SELCE's mobile solar power system	(1)Promotion of SELCE's activities and 'Solar Roller' (mobile solar panel energy source for outdoor events)	Installed August 2017. V2.0 of MAZI toolkit
Pink Palace	Pink Palace, Crossfields Estate	Community centre in large social housing estate	(1)Information repository (2) Knowledge sharing	Installed September 2017. V2.0 of MAZI toolkit

- Eileen Ford: Karen Barnes is a local artist that has been building a body of work using camera obscura and pinhole cameras. She currently resides a van that she has named Eileen Ford, which functions as a living space and a pinhole camera. This MAZI deployment enables archiving and promotion of her work and we are exploring the potential of using the MAZI camera in low light to capture images when mounted in her

mobile box camera obscura, which can then be presented within a MAZI gallery. This could be considered responding to the scenario 'Community Information Exchange' but extended to explore promotion/archiving of an artist's practice, and use of the camera as part of an artistic processes.

- **Wonky Prong:** community garden in Crossfields Estate, a large housing estate in Deptford. The original intention was for Terry the gardener to capture wildlife activity in the garden and shared with passers-by. Challenges of gaining access to power and internet at the site and concerns about theft of equipment has meant that this is currently being used to capture images of wildlife visiting a window ledge bird feeder. This installation responds to the scenario 'Networked birdbox' and has required the team to think about power and internet backhaul in community settings and hardware weatherproofing and securing equipment where it might be stolen.
- **Redstart Arts:** located in the park warden's hut, Brookmill Park. SPC has worked with Cash Aspeek to make the park warden's hut suitable as a community arts venue for Redstart Arts, working with adult artists with learning difficulties. Conversations with Cash led to discussions about DIY networking and how a MAZIzone might promote the activities of the group to passers-by: a MAZIzone has since been installed. Redstart Arts have been constructing wooden bird boxes and this has led to discussions around the idea of networked bird boxes. Working in an isolated location, there are issues around internet connectivity, but also personal safety and security of the group, so there have been discussions around using cameras for CCTV. This responds to the scenarios 'Community Information Exchange', 'Networked Birdbox' and also explores further use of the camera, weatherproofed casings, and managing internet connectivity. This space is also used by Friends of Brookmill Park (see Figure 13).
- **Solar Roller:** South East London Community Energy (SELCE) have a portable solar power system that can be hired out to power events. One of the directors is also part of the Minesweeper Collective. A MAZIzone has been installed with the Solar Roller to promote SELCE's work, and opportunity to hire the equipment. This responds to the scenario 'Community Information Exchange' and has also enabled us to further consider off-grid powering. James (SPC) has attended a workshop run by another organisation on DIY construction of solar panels, with the goal of enabling the MAZIzone to be solar powered.
- **The Pink Palace** is a community centre in a social housing scheme, Crossfields Estate. SPC supports this organisation by supporting their internet infrastructure. There is a desire in the organisation for greater tenants' communication and a MAZIzone has been set up as a community information exchange.



Figure 13: Friends of Brookmill Park meeting in the warden's hut, with Redstart Arts artwork around the walls.

8.2 Dissemination and engagement activities (eddies of activity)

There has been ongoing engagement with Creekside Discovery Centre (CDC), with SPC helping support their network infrastructure (they are an OWN subscriber) and repairing Jake Strickland's environmental sensor (described in D2.4). There is continued interest in Creeksnet deploying MAZIzones with sensors to gather environmental data, something that the MAZI toolkit is currently developing. However, this ongoing

conversation has opened up relationship with an Open University researcher, Trevor Collins, who has developed an offline networking system to support students collecting species identification data while on field walks and logging it through a central device, created for the UK Field Studies Council. This alternative DIY networking implementation is currently being repurposed for trialling by CDC. While it is unlikely that this specific system will be incorporated into the MAZI toolkit, it provides a complementary data feed that increases the value of a MAZIzone sensor system for CDC and has developed conversations and reflection about the breadth of approaches to DIY networking. This work is responding to the scenario “River sensor”.

SPC has also been developing the network infrastructure of Deptford housing co-operative, which will enable later installation of a MAZIzone (aimed for Phase 4 of MAZI) and they have actively engaged in efforts to facilitate cross fertilization with other MAZI pilots and requests from external stakeholders to get involved.

Beyond the immediate geographical focus of the pilot study location, there have been opportunities to engage with MAZI activities elsewhere, and these have provided valuable insights into the Creeknet work. Table 3, below, summarises the MAZIzones actively developed beyond the core focus of the Creeknet pilot during Phase 3.

Table 3: Deployments of MAZIzones by Creeknet developed beyond the core focus of the Deptford Creek pilot in Phase 3.

Deployment	Setting	Description of setting	Purpose of MAZIzone	Key tools
UnMonastery	Kokkinopilos UnMonastery installation, Greece	MAZIzone for Pilot 4, UM Kokkinopilos	(1)Information repository (2) Knowledge sharing	Installed by Paul Clayton, May 2017 and followed up with summer visits
MayDay Rooms	MayDay Rooms reading room, central London	Community/ activist centre engaged in social action and archiving	(1)Information repository (2) Knowledge sharing (presenting catalogue of new acquisitions)	Installed July 2017. V2.0 of MAZI toolkit
Kimchi	Central St. Martins School of Art, London	Collaboration with 3D design course at London art college	Exploration of potential to support community knowledge sharing and photogrammetry	Installed October 2017. V2.0 of MAZI toolkit with SPC customisations (berryboot, WordPress, Twine)
Reverso (x10)	Community settings in Sao Paulo, Brazil	British Council funded project led by Central St Martins School of Art	Community knowledge repositories, archiving, rights to the city	December 2017. V2.0 of MAZI toolkit with SPC customisations

8.2.1 UnMonastery Kokkinopilos pilot visits

Paul Clayton (SPC) visited the Unmonastery/Napier pilot (Task 2.4) in Kokkinopilos, Greece, three times (April, June, September) to exchange ideas and provide expertise derived from the Creeknet pilot, which had started earlier in the MAZI timeline and could therefore inform the later Unmonastery/ Napier pilot. This was a successful example of MAZI knowledge exchange between pilots. During the initial visits Paul helped unMonastery to facilitate meet-ups using a similar format to the Creeknet MAZI-Mondays; explore the functionality of the applications within the MAZI toolkit, including polling tools (LimeSurvey), shared authoring (Etherpad), and document repositories (Owncloud); realise opportunities for developing a website; and establish a repository of local oral history to engage locals and visitors.

Paul introduced the Creeknet prototyping methodology, which then collaboratively developed into an UnMonastery 'pre-tech' process. This involved initial engagement with local communities and discussing issues using artefacts and tools that are low-tech: for example, by starting the process of knowledge sharing with a paper scrapbook that locals can contribute to, before proceeding towards uploading the content and maintaining resources digitally within a MAZlzone. In one case a room was turned into an 'analogue MAZI-toolkit'. Four blog posts describing this work can be found here:

<http://www.mazlzone.eu/2016/07/19/from-creeknet-to-unmonastery/>

<http://www.soulchip.co.uk/adventures-in-olympus/>

<http://www.soulchip.co.uk/mountain-revisited/>

<http://www.soulchip.co.uk/goodbye-kokkinopolis/>

8.2.2 UnMonastery Tsepelovo pilot visit

James Stevens (SPC) visited the second unMonastery Testlab associated with MAZI, in Tsepelovo Greece (26th October to 2nd November). As with Paul's earlier visits to Kokkinopolis, the purpose was to provide expertise gained through the Creeknet pilot, assist with setting up a MAZlzone, and to exchange knowledge and practices between the two pilots. The MAZlzone was advertised by putting up posters around the area inviting everyone to try the process and message the 'Platanos' tree (the focus of the village centre, the space where the community gathers). This was the first step toward a more comprehensive interaction and information service for the village square. Using similar methods used in Creeknet James also introduced Testlab participants to the MAZI toolkit and participated in UnMonastery activities. A blog post describing this work can be found here:

<http://wrd.spc.org/tsepelovo-test/>

As well as the UnMonastery visits, the Creeknet team (OU and SPC) also arranged informal cross-fertilisation and knowledge exchange meetings during the year with Napier University (the collaborating pilot partner with UnMonastery) taking advantage of unrelated work visits to each others' cities. This enabled us to strengthen ties between the pilots, keep informed of progress and consider commonalities.

8.2.3 MayDay Rooms

MayDay Rooms is an educational charity and activist centre in Fleet Street (central London) hosting an array of archive activation, cultural collaboration and social intervention processes. James (SPC) has been supporting the group with its need for network resources, secure messaging, administrations and project management and collective development tools and has introduced a MAZlzone and as tool that may provide the platform for these needs.

8.2.4 Central St. Martins: student engagement and Sao Paulo favelas rights to the city

James (SPC) has worked with Central St. Martins School of Art (CSM), London exploring how DIY networking might be employed in their practice. This resulted in a workshop attended by students, tutors and supported by Mark Gaved (OU), focussed around discussions of DIY networking and the setting up and handing over of the MAZlzone 'Kimchi' for students on the 3D design course to explore and appropriate.

Central St. Martins led a British Council funded project working with leaders of favelas (informal urban settlements) in Sao Paulo, Brazil to enable their work in asserting their rights to the city for participating groups (see Figure 14). James (SPC) was invited as an expert to lead activities around DIY networking in the visit to Sao Paolo, along with CSM staff. James led workshops in December 2017, at various locations exploring the use of the MAZI toolkit as a community archive and knowledge exchange and discussion of DIY networking in general, and worked with CSM staff to investigate if the MAZI toolkit camera could be used for photogrammetry (creation of 3D composite images from multiple 2D camera shots).



Figure 14: Map of locations of participating groups in Sao Paulo, Brazil

The workshops took place across 3 partnered sites in Sao Paulo: Maua Occupied House; Casa Redonda/Pedro Casemiro Leite High School; and Workers Inquiry, and engaged with activists and archival material collected from the local area. DIY networking was introduced as a concept to participants, and they were helped in setting up and configuring their own MAZlzone, which was given to them to populate with local content. The MAZI collections were handed over to be distributed around the city to significant sites of political struggles which the materials in the collection relate to. These libraries will be open to anyone over the MAZI's own wireless connection. Ten MAZI zones were set up and distributed, including solar power units, these are described in Appendix B. Further information about the workshops can be found at the website set up by SPC for the action: <http://reverso.resourceforge.org/workshops/>

8.3 Outcomes

This section presents a summary of the feedback we gained during Phase 3 of the pilot. Data was gathered via participant observation during workshops, recorded in field notes; and through semi-structured interviews, carried out with the most active participants and those who agreed to trial a MAZI toolkit. Interviews were carried out with SPC as 'expert witnesses' to reflect upon activities and their interpretation of the interactions using social, and technical framings. We carried out 3 semi-structured interviews with people that took part in our integrated trials, 2 interviews with MAZI participants about DIY networking and local challenges, and a series of ongoing interviews with SPC.

8.3.1 Reflections on DIY networking

Engagement with community participants and deployment of MAZlzones has stimulated discussion about the potential benefits of DIY networking addressing the themes identified in the Description of Work (Contact, Information, Discourse and Knowledge Sharing).

MAZlzones that have been deployed are seeing initial usage, e.g. *"Undercurrents MAZlzone - we have been recording the open mic nights for the last three weeks and then using that box to leave some of it up. So that's available in the pub. [...] people have told me they have logged on"* (MAZI as means of INFORMATION, building a sense of collective awareness).

The exploration of the Wonky Prong community garden MAZlzone, currently capturing wildlife images using the camera, has also opened up conversations around DISCOURSE as well as CONTACT: *"it could be an introduction thing, you know if you logged on [you would find out that there are community garden[s] here"*.

Similarly, CONTACT between people has been discussed in terms of building relationships across existing and incoming residents and enabling KNOWLEDGE SHARING: e.g. *"It might help the newcomers integrate, it would be great if there was stuff at the Birds Nest [pub and art gallery] to explain a bit about the history"*.

MAZI's DIY networking is identified as part of an ongoing action within the Deptford Creek area and a number of participants already identified themselves as 'DIY Networkers' through their prior engagement with SPC and the OWN (Open Wireless Network). This identity does not rely on personal technical expertise; one can align with the philosophy of self-provisioning and be part of a community of technology underpinned DIY networkers regardless of technical ability. However, this does lead to self-reflective concerns by participants about their capability to fully engage in all processes and as such whether they are the 'right' people to take part in MAZI.

'DIY networking' as a concept is seen as more than just technological in nature. Participants referred to the importance of the social interactions, and the benefits achieved through the engagement with the DIY networking activities (e.g. greater contact with others in the neighbourhood, interactions, mutual support, and knowledge sharing as a result) as well as actions directly mediated via networking technologies. Contact, information, knowledge sharing, and discourse are seen as happening independent of the DIY networking technologies as well as through it.

SPC refers to the 'clearing of the ways', actions that lead to conversations and further activities, and community engagement actions have acted as a catalyst for engagement with MAZI and DIY networking in the broader sense as well as specific MAZIzone deployments. The clearing of the Hoy Steps has been referred to in Section 6 previously.

Through Phase 2 and Phase 3, supporting the opening up of the Park Warden's Hut in Brookmill Park for Redstart Arts activated conversations for how DIY networking technologies might support activities there: *"...[we] already had permission to use the hut but somehow it really got it going by having James around, that energy, because he has a lot of energy and he put a lot of energy into it, and I didn't feel like I was doing it on my own and it really did get that going"*. Redstart Art's sessions in Brookmill Park encouraged more people into the park itself *"Giving people a reason to come and have a look, bring people in that wouldn't normally come here, generates interest in creativity, gives people something to moan about, there were two people that moaned about the birds [art] but out of the hundreds..."*.

This has led to increased numbers of people participating in community actions in the park: *"Generating interest, creativity, just the happening, people liking, clearly people came to the river clean up, we had over a hundred people for the picnic, [at] previous picnics there have been 6 to 20 people, this time over one hundred"*. A MAZIzone has now been set up and discussion of how their birdbox making workshops might lead to networking tools to observe bird activities is underway: *"Putting cameras in bird boxes ... I see that as educational. We would be able to see what's going on. That too feeds into the idea of doing family workshops, or something that could go on the website, or on Facebook, just information so people think 'Wow that's happening in the park!', those unseen things, it's like all education, it just makes you aware of it doesn't it"*.

There is a recognition that relationships have to be managed sensitively, and the MAZI team needs to be careful not to be *"too much of a salesman"*. SPC, as a local community technology organisation has to balance the promotion of the project against long term commitments within Deptford and hence choosing the appropriate moment to engage community members is important: *"not to even mention it even though I have it with me and I know it's available, until I think there is a glimmer of comprehension, recognition or appetite for anything at all then I am not going to even trouble people with it"*.

A number of technical and social insights were identified as a result of activities undertaken in Phase 3 and these are now discussed.

8.3.2 Technical insights

In Phase 3, there was an increased focus on explorations of the MAZI toolkit in community settings, while we continued with the work activities identified in Phases 1 and 2 (e.g. community outreach to new groups, introduction of MAZI and DIY networking as concepts, and prototyping). With the MAZI toolkit under development and moving through a number of releases, challenges that had been encountered in Phase 2 were in some cases by now resolved, or under development by the technical team, though additional challenges were revealed at this stage.

The greater emphasis on introducing the MAZI toolkit, rather than general conversations of DIY networking and mediated demonstrations of MAZI tools revealed that technical training in tool use (e.g. WordPress, the MAZI toolkit interface) to build confidence and competency is required as part of our engagement activities, but consumes more time than expected: we are limited in the contact time we have community groups. Therefore this places an emphasis on ensuring training materials and documentation (e.g. guides to tools) can support independent learning. As we were making the proposition that the MAZI toolkit enables offline operation, networked communication independent of the internet, it will be important for us going forward to ensure necessary material is held as much as possible within the toolkit itself rather than via the internet: for example, in a number of community venues we were working we did not have internet access, and we can imagine potential use scenarios where a local administrator might be seeking to set up a MAZIzone away from a reliable connection.

The opportunity to present the MAZI toolkit in Brazil brought into focus the question of how the toolkit could be localised, to enable tests to be translated into community mother tongues by local administrators. The toolkit already enabled the translation of key text elements and this stimulated discussion on how comprehensive translations might be enabled including languages that the team would not themselves be able to support (we were asked for example whether we might support an indigenous Brazilian language, Tupi-Guarani).

8.3.3 Perceived social barriers

In Phase 3, we experienced a number of perceived social barriers that limited potential engagement.

Concern that DIY networking isn't something for our target users, and a belief that a level of technical competency is required to participate with the MAZI toolkit which is beyond their capabilities. A number of participants expressed their concerns that engaging with such an environment was difficult for them *"I don't think I am quite the right person to be involved, I am an idiot when comes to computers"*. This hints at the importance of 'pre-tech' and introductory sessions encourage participation and build confidence, a greater emphasis on training, and better support materials to be developed and provided alongside the tools to reduce the perceived barriers. We recognise that the toolkit is under development and some of the initial hesitancy when encountering prototype versions will be resolved as the system matures.

However this also identifies **the continuing need for potential participants to see the relevance of the tools** to solve challenges in their already busy lives. James (SPC) identifies the need for sufficient "appetite": *"the toolkit worked for the UnMonastery group but they had a purpose and an appetite for it"*. There is a balancing act when engaging people in trying out the MAZI toolkit: if people don't have a specific need, they may not wish to engage with an additional tool for the sake of engaging with technology as an end in itself (an autotelic motivation), however if their circumstances are such that they are stretched to the limit they may not have the capacity to engage with something that requires too much additional energy: *"people can tune into it but they then snap back into the reality of their lives"*.

The research team had discussions around **how to support initial engagement with potential participants** before the download of a MAZI toolkit. There was a concern that the emphasis so far has been on introducing the toolkit itself, and to 'build appetite' there would need to be further work to support the steps eventual users might go through before this step. Currently, this is managed through personal interactions but we are considering how this might be sustained in the long term.

This leads to another identified barrier: **the lack of visibility of the project** and its activities in the Deptford area. A number of participants indicated the need for better signage – to let people in the area know about the project and its activities, and to invite people to try out MAZIzone tools. Better promotion is required and lack of awareness of the project may be a barrier to uptake.

9. Reflections

In this section we reflect on key elements of Year 2 work: community engagement events, community partners and the project team's relationship with local groups, the use of conceptual framings, factors affecting uptake, and sustainability.

9.1 Community engagement events

Through Year 2 we have continued to focus on reaching out to groups and building trust with participants through community engagement events. This has been a more gradual process than anticipated, and hence remains a significant element of our ongoing work, though is appropriate for a participatory action research approach. MAZI meet-ups have continued to function as a boundary object where the community partner SPC have acted as agents of change; bridging the gap between the project's academic research and development of the MAZI toolkit, and its introduction to local communities.

Our primary vehicle for engagement during Phase 2 was the weekly MAZI meet-ups (as explained in Section 6). These were a continuation of the meet-ups ('MAZI-Mondays') initiated in Phase 1, however, in Phase 2 these moved to a greater focus on DIY networking technologies. These meet-ups represented opportunities for our communities to gain some hands on experience of trying out DIY technologies. They also opened up opportunities for us to engage participants in conversations about communities' living conditions and working practices, and what useful tools they might use. To encourage participation and ground our work in a local narrative we also introduced the use of maritime metaphors as a conceptual framing to help explain the value of DIY networking. These bridging linguistic tools (Furu and Salo, 2005) were also carried through to the design of post-evaluation forms, public events, such as the cross-fertilization symposium, and in our promotion of Creeknet through SPC's blog (<http://wrd.spc.org/>).

Year 2 MAZI meet-ups started in the wake of the burning down of the Minesweeper boat. This tragic event brought local Deptford communities together in a sense of solidarity, providing a rude awakening as to how vulnerable many of the communities living on and along the Creek are, and a number of participants attended MAZI meet-ups specifically to show their support of the Minesweeper Collective. The strategy of using both familiar and novel places worked well and the regularity of the meetings resulting in repeat attendance by a number of people.

The meet-ups facilitated exploration into the scope that DIY networks and complementary solutions offered local communities, and there was active debate around the value for local groups setting up and maintaining their own technology enhanced networks: we recognise there are many existing grassroots social networks, and communication tools already being used, and the case has to be made for engaging with an additional set of tools. It cannot be taken for granted that groups will wish to do so: as one participant noted "*I will always ask why*" (regarding committing to taking on another tool). The community groups we are working with have limited resources and expertise, and have to manage their capacity with care. SPC's established reputation in the neighbourhood encouraged attendance and curiosity, but the groups are pragmatic in their uptake of new tools.

A number of the participants have prior experience of DIY networking through being subscribers to SPC's OWN self-provisioned wireless network, so they are aware of the likely challenges involved in setting up and maintaining their own systems. A greater level of trust and belief in the sustainability in a system is required before people are willing to expend energy and entrust valuable community resources to a networked service that holds community knowledge than agreeing to help maintain an infrastructure (Mulholland et al. 2009) and participants were cautious about what an under development MAZIzone might be able to offer to resolve their local challenges.

Participants were aware of the public debate around the security of networked data and surveillance in general. They recognised the potential value of an offline system that enabled local storage and control of data; however, one attendee pointed out that beyond being offline, the MAZI toolkit does not as yet provide functionalities for ensuring data security (e.g. encrypted communication or storage). The concept of a personal, mobile network hub was seen as an attractive offering but this also triggered debate about whether it could be connected to the broader internet, the range of an individual MAZIzone, and whether it is possible to connect together networks of MAZIzones to extend range across a larger geographical area. Demonstration MAZIzones were activated at all MAZI events and participants were encouraged to explore the tools available. Participant feedback was collected

on tools was collected and reported back to the technical team through the established channels: a technical mailing list, and github issues lists.

Hands-on exploration and gathering of feedback was most successful when a specific training exercise was focussed around a particular tool, e.g. the Guestbook, and in general people were wary of unsupported investigation (when a MAZIzone was left running during a meeting and people were invited to explore informally). A notable success was the use of Etherpad as a live collaborative note taking device during the meeting to record activities and collect field notes: several attendees joined in the process at meetings and added their own contributions, and this has led to its take up via a SPC hosted server as part of Friends of Deptford Creek's organisational processes.

The level of engagement of different groups with the MAZI project has changed across Year 2 both as a result of both their reflection on the interactions with the project team and the MAZI toolkit, and also external circumstances. Table 4 summarises SPC's interpretation on the levels of engagement and focus placed on the different community groups across the course of the pilot to date.

Table 4. SPC's reflections on the focus placed on the different community groups: from 'hot' (red) through to 'neutral' (yellow), 'cold' (blue) and 'disengaged' (grey) (where the red, yellow, blue and grey markers represent how communities have moved between being hot, neutral, cold and disengaged, respectively).

Jan-Jun 2016	Jul-Dec 2016	Jan-Jun 2017	Jul-Dec 2017	Jan-Jun 2018	Reasons for engagement/ disengagement
APT ●	APT ●	APT ●	APT ●	APT ●	Contact made but little interest shown in MAZI
CDC ●	CDC ●	CDC ●	CDC ●	CDC ●	Active interest, keen to try out MAZI toolkits to sense the environment and extend their practices
Birds Nest ●	Birds Nest ●	Birds Nest ●	Birds Nest ●	Birds Nest ●	Initial interest and hosting a MAZIzone, but focus has shifted
Minesweeper ●	Minesweeper ●	Minesweeper ●	Minesweeper ●	Minesweeper ●	Hosted MAZI-Monday sessions, initial enthusiasts, loss of the Minesweeper ship has meant focus has shifted to survival
	Steven Lawrence Centre ●	Steven Lawrence Centre ●	Steven Lawrence Centre ●	Steven Lawrence Centre ●	Hosted MAZI-Mondays and Cross Fertilisation event but little interest shown in onward participation
	Friends of Brookmill Park ●	Friends of Brookmill Park ●	Friends of Brookmill Park ●	Friends of Brookmill Park ●	Active participants keen to explore means for self-publishing and organising. New environmental project means increased interest in using networked tools
	Redstart Arts ●	Redstart Arts ●	Redstart Arts ●	Redstart Arts ●	Active participants keen to explore MAZI scenarios and use networked technologies to extend their educational and awareness activities
	Hoy Café ●	Hoy Café ●	Hoy Café ●	Hoy Café ●	Enthusiastic participants supporting opening of the Hoy Steps, engagement in local networking and storytelling. Personal circumstances have led to disengagement but desire to re-engage later
	Friends of Deptford Creek ●	Friends of Deptford Creek ●	Friends of Deptford Creek ●	Friends of Deptford Creek ●	Active participants using tools demonstrated in MAZI toolkit via SPC's server to support group's activities, engaged with self-publishing. Threat to boaters' moorings means active interest in using networked tools.
	Karen Barnes ●	Karen Barnes ●	Karen Barnes ●	Karen Barnes ●	Active participants and critical tester of MAZI tools throughout development. 'Eileen Ford' installation and further experimentation expected
	Deptford Housing Coop ●	Deptford Housing Coop ●	Deptford Housing Coop ●	Deptford Housing Coop ●	Network infrastructure recently improved, with interest in exploring tools to encourage knowledge exchange and democratic processes
		Wonky Prong ●	Wonky Prong ●	Wonky Prong ●	Active participants with interest in promotion of community garden and wildlife observation
		SELCE ●	SELCE ●	SELCE ●	Developing interest in tools for promoting activities and supporting organisational practices
			Pink Palace ●	Pink Palace ●	Support tenants communication and information exchange

In terms of the actions, we encouraged participants to contribute towards community mapping, participate in training, and take part in the deployment of the toolkit. Participants were invited from SPC's existing network of contacts and others identified as likely to be interested in the project, and they were in turn encourage to promote the events, acting as 'community champions'. These enthusiasts helped to progress the community

mapping by offering insights into local perspectives of Deptford Creek's geographical, political, social and cultural environment. They also helped facilitate the integrated trials by agreeing to take away a Raspberry Pi with a version of the toolkit installed and test it in their everyday practices e.g. to share archives, tell stories of facilitate communication between local groups.

9.2 Community Partners

Those who have engaged during the pilot have largely been determined by the level of response that we (the OU and SPC) have been able to stimulate in the concepts of DIY networking and use of the MAZI toolkit for addressing local challenges. This has involved reaching out to people through planned MAZI meet-ups and informal social encounters in an attempt to initiate conversations about the possible benefits of improving communications e.g. through establishing a digital presence and the sharing of digital archives (e.g. art gallery, audio recordings of local gigs, local histories).

By the end of 2016 (in D2.4) we had identified the groups and individuals with whom we might work. We identified four groups that showed the most appetite for exploration of specific scenarios using DIY technology (Friends of Brookmill Park, Friends of Deptford Creek, Creekside Discovery Centre, and The Minesweeper Collective). In 2017 we continued to engage these groups in parallel to engaging the wider community through MAZI meetups events, informal encounters afforded to us by SPC's social network, and the MAZI Cross-fertilization event that took place in June 2017.

Due to a series of unforeseen circumstances some of the groups that showed the most promise of adopting DIY networking were not able to continue to actively engage in the pilot. For example, The Minesweeper Collective suffered a disaster as their central vessel burned down in January 2017, resulting in the loss of the physical centre for generating community activity, and with it much of their equipment, their archive, and members' personal belongings (Figure 15). The cluster of vessels surrounding this boat continue to be used but onward discussion of their residency rights has been brought into critical perspective, with the loss of their former land access, and debate about the community's continued existence in its present form. Members continue to be active in the local neighbourhood, with focus shifting to the 'Undercurrents Gallery' in the local Birds Nest pub and subscribing to SPC medialab, Deckspace. Energies have been divided between looking forwards and resolving the challenges. It has therefore not been practical to involve them directly in the Creeknet pilot, but there has been an ongoing discussion of the future of the Minesweeper hulk, with potentially positive outcomes both for the Collective and also MAZI's involvement. This has centred on its reimagining as an ecological resource: an environmental reef that could be moored in the Creek and allowed to become populated by local wildlife as a natural habitat. This will be managed and monitored in partnership with the Creekside Discovery Centre, another MAZI community partner, and used as a resource for their work, with the potential for MAZI involvement. The timescale for this activity is yet to be confirmed.



Figure 15: The burnt remains of the Minesweeper Collective's workshop and gallery (former navy minesweeper), with new apartment blocks rising in the background

This example of the Minesweeper Collective moving in and out of focus has been characteristic of a number of the community partners with which we are engaged. The success we have experienced in engaging people has been afforded by maintaining regular MAZI meetups and through SPC's informal encounters with these communities.

SPC's perspective of who is and isn't engaged in the pilot is critical. We attribute the success we have experienced in maintaining and developing new engagements during 2017 to the personal connections that SPC nurtures with local groups, playing a vital gatekeeping role. SPC encourages attendance at weekly drop-in sessions and informs the OU of reasons why some haven't been able to participate, and who we should contact to gain access to strategic locations along the Creek. This effort to actively engage community groups in the hosting of events, for example, led to the temporary opening of the historical Hoy Steps on Deptford Creek, which came about as a direct consequence of choosing to host weekly MAZI meetups in the Hoy Café. The opening took place as one of the Creeknet Cross-fertilisation symposium activities (June 2017, project M18). This brought together existing community partners, new contacts, and MAZI project partners (reported on in Section 7). The success of the cross-fertilisation and other events can be attributed to a conscious decision to ensure they were as public facing as possible rather than closed meetings, drawing in participation where possible both from those community members with which we were already engaging, but also be advertised to a wider public, and taking place in venues where passers-by might drop in.

9.3 Factors affecting uptake of the MAZI toolkit in the Creeknet pilot

Gaved (2011) explored the potential barriers to the uptake of local community networking initiatives, proposing eight possible hypotheses as to why an initiative might struggle to be adopted. Below, we reflect on the Creeknet

DIY networking activities to date, and consider whether each hypothesis may offer explanatory power to understand our current progress and challenges.

Hypothesis 1: Critical mass – the need for sufficient users, lead volunteers, and content

At the end of Phase 3, we are mostly deploying MAZlzones experimentally in pilot settings, with the software still under development and being periodically upgraded so in most cases we have not considered whether a critical mass of use has occurred. Currently, most deployments need the research team's ongoing support and have not in that sense become sustainable in the long term: further support and training of community participants is required, and a more active community of confident administrators needs to be developed who can support each other. Content is being generated in a number of cases, and a little use has begun to be made of the services, and we will monitor usage of live deployments throughout Year 3.

H2: Unsuitable application of technology – the technology does not suit the purpose of the participants

In a number of cases, the tools have been adopted and incorporated into working practices, suggesting that the MAZI toolkit is suitable for some groups. Not all groups we have engaged with have adopted it and we need to gather further feedback on their reticence. As the toolkit is still under development, it is difficult to respond fully to this hypothesis.

H3: Local versus ego - based interactions: people may value relationships based on interest more than location

A key framing of the MAZI toolkit is its use as a hyperlocal system, and this has been clearly communicated and not challenged: this hypothesis does not appear to be a concern at present. Participants value the idea of a system that connect nearby neighbours.

H4: Local resistance to outside intervention – community technology is not perceived as having come from within the community but has been pushed by outsiders: resistance at being told what is good for them by outsiders

SPC's role as long-standing community activists and their ongoing communication and outreach activities reduces the potential validity of this hypothesis, however the MAZI project is clearly identified as an EU funded project, and there is wariness by some residents of the ulterior motivations and its long term sustainability. SPC themselves are aware of the subtleties of 'localness' and are concerned that they themselves are not always seen as local to some groups.

H5: Domestication – the 'solution' may be alien to people's social practices, and they can't get used to it, it doesn't fit into their daily routines.

This hypothesis has validity and is true in the case of a number of groups with which we have engaged. Technology capabilities (or appetites) are not always high and the introduction of a new technology based networking system is not always seen as the answer to resolving local challenges. Existing pressures may limit the desire or capability to engage with an additional toolset. This identifies the need to continue developing introductory approaches and training materials to encourage engagement and discussion around the potential of adding additional tools to people's existing practices, the 'pre-tech' stage of our support. Further user testing and evaluation is also required to ensure that tools are as well designed as possible and open to local customisation.

H6: Sponsorship - technological and political support of the concept. Locally respected community leaders need to support the project. Financial and other resource sponsorship.

MAZlzones in Creeknet are currently greatly supported by SPC's ongoing efforts so greater local sponsorship is required for them to become truly sustainable in the long term. In one case, the Undercurrents gallery (Birds Nest), the MAZlzone is managed and run by a community participant with the support of SPC, and is the closest to an independently sustained MAZlzone in Deptford.

H7: Upkeep - resources to keep a community tool running. Ongoing management of the service (making sure it runs well, solving people's problems, updating content)

MAZlzones in Creeknet are currently greatly supported by SPC's ongoing efforts so greater local input is required for them to become truly sustainable in the long term. A commitment to ongoing online support will be required: MAZI has a number of online channels (e.g. a technical mailing list and a github issues list and wiki) but these will need to be maintained after the life of the project and efforts expended to ensure a thriving online community develops. The Kimchi and Reverso MAZlzones outside Deptford are maintained independently, but have only recently been launched so we cannot yet report on how well they are being maintained.

H8: Surprise – need for new content and new resources to make sure users find something new and interesting

With the MAZI toolkit under development and new releases being produced, each new release brings changes and live MAZIZones are periodically updated. We have not as yet carried out evaluation on users' perceptions in the locality of whether the changes have added value. As MAZIZones become established, we might also monitor the rate at which new content is added by local users and how this is received: it is too early yet to test this hypothesis.

We will revisit these hypotheses at a later stage to see if circumstances have changed. In the following sections we summarise the progress we made in terms of finding effective ways of engaging communities through the implementation of a PAR approach in Phases 2 and 3 of our pilot.

9.4 Conceptual Framings: localising language to speak to Deptford Creek

The importance of a narrative to engage people has been reinforced in Year 2: the concept of 'DIY networking' is both too familiar, and too abstract, for many of the people with which we seek to engage in MAZIzone trials. On the one hand, it is too familiar because we are reaching out to individuals and groups that see 'doing it yourself' and grassroots community action as something they already subscribe to as a philosophy. We are speaking to artists, community activists, and voluntary groups who use DIY networking in the broadest sense as a core part of their existing working practices, and as a result we are learning from them as much as they are learning from us, and it is enriching our understanding of what it might be. On the other hand, the technological aspects of our offering are difficult to grasp and articulate, sometimes even for the research team, so we have continued to explore the potential of using conceptual framings that resonate with our intended audience. As noted by Furu and Salo (2005), "language functions as a means ... for collaborative meaning making" and "enables partners in action research- researchers and practitioner – to coordinate their joint action" (p1). They note that "[t]he very idea of a metaphor is to focus, underline, and demonstrate a certain aspect of a phenomenon that might be somehow unfamiliar, complex, or complicated" (p.2).

Deptford Creek has a rich maritime heritage, and hence maritime metaphors has surfaced as a means of communicating our purposes. For some of our participants, such as the boating communities, this is language which is very much part of their daily existence, but for all participants there is an enjoyment around affirming their identity with Deptford and its Creek, and its current and historical activities. By using this language as a bridging tool we align the MAZI concepts more closely with local needs, and make it intelligible. The Bluetooth beacons have been referred to as 'Anchorholds', mooring points along the Creek to locate stories. In community engagement workshops, participants were asked to give their view of the Creek by sketching using a 'porthole' as a frame. This metaphor was taken up by boaters and we were asked to produce a QR code on a flag that when viewed through a QR code reader would resolve to an image of a pirate flag- this suggestion from one of the most technologically reticent of our participants. We were assured that flying a Jolly Roger flag on boats is illegal and they liked the idea of using technology to obscure the true meaning of their flag. We took these metaphors forwards into the cross-fertilisation event, where we debated how we should help people to meet each other and build their social network. The initial plan to issue name badges was rejected and instead we decided on self-identification stickers (discussed in Section 7, earlier) and as a result, alongside the options for participants to use more conventional terms of reference such as 'education', 'MAZI' and 'artist' we also included 'pirate' (a playful association with marine living and anti-establishment attitudes), 'SE8 mate' (SE8 is the postal code for Deptford – so 'SE8 mate' is a cheerful way of identifying yourself as a local resident), and 'anchorite' (a hermit living in the area). The anchor icon was used throughout the stickers, and the crossed anchors symbol of the nearby Royal Dockyards was used in publicity and to represent locations of activity.

In another example of localisation, SPC has been exploring modifying language on the MAZI toolkit to make it more understandable to communities, and we have been working hard to encourage the prioritisation of easy interface text editing, not only into alternate mother tongues but also to allow simple local edits. For example, one of the SPC demonstrator MAZIzones was yellow, so it was named 'Custard'. It was a short step therefore to rename the Etherpad shared document editing tool (to support local conversations) to 'Rhubarb' – a colloquial term for chatting, and a traditional English dessert eaten with custard. It has been important to humanise the toolkit for non-technical audiences.

9.5 Building trust

In D2.4 (M12) we acknowledged the challenge that adopting Participatory Action Research would bring in striking a balance between the conventional research approach of formally gaining informed consent, whilst recognising this as a possible barrier to engagement due to legitimate concerns of participants. In Year 2 (Phase 2&3) we have had to tread carefully in deciding when and how we ask participants to give their consent for their feedback to be recorded. The adoption of PAR meant that we worked hard to avoid turning interactions into cold clinical interactions. This meant that we had to acknowledge there was a risk that participants attending our informal drop-in events were being subject of forced co-operation given the challenges of being able to truly offer confidentiality and anonymity (e.g. Mayer 1993). We therefore adopted a democratic approach, making it clear at the start of any data collection that participation was on a voluntary basis. The right to withdraw was stressed at the beginning of group events before observations were recorded and when participants took part in semi-structured interviews.

Further time has been spent establishing terms of reference based on interpersonal relationships facilitated by SPC's long history of trust building. We found this to be more favourable than insisting participants immediately sign legal forms and contracts. In practice this has meant that we have spent much of Phase 2 investing time developing relationships and building trust, before we could reach a point in Phase 3 where participants were willing to participate in a semi-structured interviews and sign a formal consent form.

9.6 Tensions of insider/outsider researcher status

SPC continue to be the vital gatekeepers for building community trust and commitment based on their long term engagement in Deptford, and we recognise the OU would be seen as outsiders without their support: MAZI work without SPC would be seen as an outside intervention and most likely rejected or ignored. On the other hand, there is the research concern whether objectivity can be ensured if the researcher is an insider in the sense that they also act as practitioners in the research setting (Löfman et al. 2004), and we have to reflect on our practices and our biases as we continue through the project. The OU recognised the importance of working to be accepted within the community and not be seen as lofty academics from another town, while SPC, though acting as researchers within the MAZI context, are keen to maintain their role as activists and have to consider their activities in the light of their status as residents and committed to long term future engagement in local activities.

9.7 Project versus initiative timeframes

We have made significant progress in Year 2, but some not all progress has been as swift as expected. We recognise that taking a PAR approach we need to allow time for relationships to develop. Methods of engagement have continued to operate at the level of informal and low key approaches. This has been necessary to gain participants' confidence; moving from informal encounters engaging in conversations about the potential opportunities and barriers to DIY networking towards integrated trials supported by more structured meetings exploring the scope of employing and deploying the MAZI DIY toolkit. A significant challenge for Creeknet might not be whether a number of local residents will explore the MAZI toolkit, but the time frame in which they do so, fitting around their other already busy schedules and existential challenges. This echoes Day and Cupidi's reflection (2004) on the tension between closed time and funding framed 'projects' versus open ended 'community initiatives'. This also resonates with participants' concerns about our commitment to the long term: how will we ensure that their commitment is respected in the long term? As Mulholland et al. (2009) have noted "the issue of sustainability is even more pressing when ICT is being used to support community memory building rather than only internet access or communication. From the outset, the project needs to determine how the community will maintain long-term access to, and control of, the community memory in which they are investing their personal resources" (p.13).

Our main ethical challenge was to create opportunities for engagement that also enabled us to draw lessons from observations and feedback whilst ensuring that those attending did not feel pressured to participate. To gain feedback on the effectiveness and usability of services, it wasn't practical to carry out a full range of formal academic evaluation processes. The informality of the structure of the events, and concern of participants around our ambitions meant we needed to tread carefully to not alienate participants. When we did plan to

collect data we opted for a democratic approach, making it clear that participation was on a voluntary basis and the right to withdraw was stressed before observations were recorded.

Feedback forms for participants were used for the MAZI meetings, and included maritime metaphors such as portholes and views of the Creek. A feedback form was devised for the research team (see Appendix A) to help structure and capture reflections after each event. Observations were drawn from research notes, blog posts and emails. Co-authoring of meeting notes was encouraged with community participants through recording observations and reflections using the Etherpad collaborative writing tool hosted on a demonstration MAZI toolkit brought to meetings. Some photographs were taken at events, but several participants were wary of our motives, and we decided it was more important to gain trust than to extensively document all the events.

To undertake the research we ensured we had considered the guidance provided by the MAZI deliverable addressing ethics requirements (http://www.mazizone.eu/wp-content/uploads/2017/11/MAZI_POPD_final.pdf) and received approval from the Open University's Human Research Ethical Committee (HREC).

10. Conclusions and Outlook

In this section we provide a summary of the key activities we have engaged with during Phase 2 & 3 and explain the future outlook that for Phase 4 (M25-33).

10.1 Summarising key activities

In Year 2 of the project (Phases 2 and 3), we noted the following key outcomes:

The purpose of Phase 2 was to carry out an initial implementation of network infrastructures and individual services to enable community engagement (M13-M18):

- to include a focus on micro data hosting, web authoring and communication tools that promote offline networks, safer mobile communications and inspire public interactions
- to arrange for the first iteration of implementation tools to be tested by community champions to enable critical reflection on their usability and affordances, and likely opportunities for integration within MAZI toolkit
- to ask participants to provide feedback on the effectiveness and usability of services

In these high level objectives, the pilot succeeded in:

- running community engagement events ('MAZI meet-ups') where DIY networking was discussed, emphasising the training and use of networked tools for self-publishing stories and promoting groups' activities (e.g. using WordPress), supporting organisational processes (e.g. recording meetings and structuring actions using Etherpad, and via SPC's Sandstorm server) and catalysing community discussion and information sharing (e.g. through the Undercurrents MAZIzone recording media and stories around the Minesweeper Collective)
- deployment of MAZI tools as demonstrators at MAZI meet-ups, and early release versions tested in community settings as the first Creeknet MAZIzones collaborating with community participants
- gathering feedback at MAZI meet-ups, and conversations and observations during initial MAZIzone installations and deployment. Feedback reported to technical team through established project channels. Our approach was to present combinations of network and collective development tools, a pick-and-mix of hardware, software and scenario conditioning. Reports of events were published through SPC's blog, and technical findings and insights were reported back to the MAZI development team through emails to the technical list (e.g. usability issues, requests for additional functionalities or services).

The purpose of Phase 3 was to carry out an integrated MAZI trial to embed the prototype MAZI toolkit (with constituent services) within a broader reaching community network (e.g. OWN) (M19-24):

- to introduce community leaders to the first version of the integrated toolkit and providing a selection of services and configurations in response to local conditions
- to promote to a wider community of users through network champions and local media actions (e.g. by promotion at SPC Wireless Wednesdays and other community level outlets)
- to carry out training for neighbourhood participants through regular community based activities, including workshops and drop-in sessions
- to host an evaluation workshop to get feedback from the community and enable design input into a further development of the system

In these high level objectives, the pilot succeeded in:

- demonstrating and deploying the evolving MAZI toolkit in Deptford and beyond, with services adapted to local situations, including localising of language and exploration of complementary developments
- Five MAZIzones deployed in Deptford, and 13 beyond.
- promoting the MAZI project and toolkit through MAZI meet-ups, SPC's active seeking out and attendance at related community events in Deptford, disseminated through SPC and Soulchip Communications (Paul Clayton) blogs, promoted to SPC's existing network (e.g. OWN subscribers and Wireless-Wednesdays), and through the cross-fertilisation event
- training through MAZI meet-ups, collaborative deployment of MAZIzones with community participants, and individual sessions as required

- gathering evaluation feedback through MAZI meet-ups and cross fertilisation events plus semi-structured interviews.

10.2 Future outlook: Year 3 activities

In Year 3 of the Creeknet pilot, we will engage with new objectives identified for Phase 4, but also continue to develop actions started within Year 1 or 2.

For example, community engagement will be carried on throughout the project. We recognise it is important to revitalise early connections and to continue to reach out to new groups if we are to aspire to reaching a critical mass of participants to sustain the MAZI toolkit beyond the funded period. Groups who initially interacted with us and have disengaged may re-engage as their circumstances change.

For example, the Minesweeper Collective's catastrophic loss of their boat led to disengagement, however there have been recent discussions with London Port Authority and Creekside Discovery Centre around the possibility of the burned out hulk being managed at an alternative mooring as a wildlife habitat. We are therefore in conversation with the Minesweeper Collective to identify how we might work with them and Creekside Discovery Centre to mount MAZI toolkits to sense the environment and provide a resource for community conversations around the boat. Through meetings with the Friends of Brookmill Park (FoBP), introductory blogging training sessions were set up and members encouraged to publish activities. This has had limited success after initial postings, though towards the end of Year 2 we found that FoBP had been awarded funding to support the establishment of a rare flower, the Deptford Pink, in the Park, and the Creeknet research team are hoping this may provide impetus to disseminate activities. Re-engaging activities around this work will be the focus of early Year 3 meetings with the group.

The MAZI toolkit has been under rapid development during Year 2, and as it stabilises into its final form it will be easier to engage a wider audience with a more 'finished product' form.

Actions for Phase 4 (Months 25-33) will include:

- Upgrading the Deptford infrastructure with the final version of MAZI toolkit into the running community network
- Carrying out further training and promotion, developing and trialling additional training materials
- Setting up an online service to enable communication between the Deptford and Kraftwerk participants to allow exchange of knowledge and ideas around the use of MAZI toolkit
- Evaluating the adoption, appropriation and usage of the final version of the MAZI toolkit in Deptford

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Appendix A

Form used to structure feedback collection from MAZI-Mondays

Creeknet meeting evaluation form	
Title	
Institution Name	
Work Package(s)	
Contact	
Planned start & end date	
Aims	
Methods / Activities	
Number of participants	
Background of participants	
Duration	
Web link to resources	
Link to past studies	
Link to future studies or anticipated outcomes	
Status of analysis	
Summary of findings	

Appendix B

List of MAZlzones set up in Sao Paolo, Brazil as part of Central St. Martin's visit, December 2017.

Name	Location	Description	Installation date	Equipment
Reverso 01	Casa Redondain	The Morro do Macaco favela	05/12/2017	MAZlzone v2.0, Pi, solarPV/battery, micro USB cables, wlan USB, 5v – 3.1amp USB charger.
Reverso 02	IIEP	Research initiative focussed on union histories and workers struggle	05/12/2017	MAZlzone v2.0, Pi, solarPV, USB battery, micro USB cables, wlan USB, 5v
Reverso 03	Occupia Maua	Occupied housing in downtown Sao Paulo	06/12/2017	MAZlzone v2.0, Pi, solarPV, USB battery, micro USB cables, wlan USB, 5v
Reverso 04	Perifatividade	collectiva in the Jardim Bristol Favela	07/12/2017	MAZlzone v2.0, Pi, solarPV, USB battery, micro USB cables, wlan USB, 5v – 3.1amp USB charger
Reverso 05	Associacao Cultural	Social centre in the Vila Nelson Cruz Favela	08/12/2017	MAZlzone v2.0, Pi, solarPV, USB battery, micro USB cables, wlan USB, 5v – 3.1amp USB charger.
Reverso 06	Arte Moloqueira	Community action and culture in the Chabilandia Favela	09/12/2017	MAZlzone v2.0, Pi, solarPV, USB battery, micro US cables, wlan USB, 5v – 3.1amp USB charger.
Reverso 07	Movimento Cultural	Cultural Centre in the Ermiliano Materrazo neighborhood	10/12/2017	MAZlzone v2.0, Pi, solarPV, USB battery, micro USB cables, wlan USB, 5v – 3.1amp USB charger.
Reverso 08	unallocated	(-)	(-)	(-)
Reverso 09	Agencia Mural	(-)	11/12/2017	MAZlzone v2.0, Pi, solarPV, USB battery, micro US cables, wlan USB, 5v – 3.1amp USB charger.
Reverso 10	Escola da Cidade	(-)	11/12/2017	MAZlzone v2.0, Pi, micro US cables, wlan USB, 5v – 3.1amp USB charger.